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SCHOOL AND SOCIETY

EDITED BY J. McKEEN CATTELL

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SCHOOL AND SOCIETY

Volume V SATURDAY, MAY 12, 1917 Number 124

A CORE CURRICULUM FOR HIGH SCHOOLS[1]

I. THE PRESENT CHAOTIC CURRICULA

THE American people manifest to-day both a sense of need of secondary education for all children and widespread discontent with the type of education, or schooling, which is offered. In the last few years, in fact since the opening of the new century, the total number of pupils in the high schools of the entire country has doubled, an increase in secondary education never before witnessed on this planet. The increasing number of surveys, the great amount of research, and the remarkable reorganizations now going on in our high schools are evidences of the desire for changes now stirring the minds of patrons and schoolmasters. No great war with a foreign power has been necessary, as in the case of England, to awaken us to the realization that schooling is a means of adaptation and must continually be reconstructed as a supplemental agency to do its work for society. It is more of a pleasure to a constructive than to an adaptive mind to live in such a period of transition and rapid change made necessary by long years of conservative reliance on a now overthrown conception of secondary schooling.

In 1893 the German Kaiser begged the secondary schoolmasters of his land to take up the social aim of schooling for the three types of secondary schools then in use, but he was met by the satisfied and mind-stopping reply that it doesn't matter what young people study so long as they agonize over it sufficiently—the doctrine of formal discipline. This same reply defeated the socialization of American secondary education also and would have postponed indefinitely any progress if experimental education, psychology, and the sound common sense of our people had not finally risen above the old dogma. This dogma which the schoolmaster so carefully taught the people has to-day become a terrible Frankenstein in many communities, for it has become common public opinion and progressive high-school leaders frequently have difficulty in obtaining progressive measures and in harmonizing the demands of those who demand the "classical" and those who demand the utilitarian subjects.

The result has been that we have shown remarkable courage and energy in getting new courses into our high schools to meet the needs of the world to-day, but have shown little or no courage in eliminating the dead wood suited to a bygone age. The consequences have been (1) an overgrown, miscellaneous high-school program of studies carried on at great cost to the public, (2) an almost complete surrender to an aimless elective system instead of the rigid requirements of years gone by (Pittsburgh to-day requiring but English and music and Erie requiring but English of all pupils), and (3) an unsettled state of mind which makes possible nothing positive and opens the way for fads and fancies, bitter criticism back and forth between what James called the tough- and tender-minded, and failure either to educate the

[1] Preliminary report for criticism of chairman of a committee of one-hundred-five of the High-School Department of the Pennsylvania Education Association.

children or promote the ends of our industrial democracy.

Out of this chaos there must emerge a new social philosophy of education that shall grip men's minds and give them some aim and purpose by which to guide this wonderful new creation, the high school and people's college for all the children of all the people. Along with this must emerge also a new science of secondary education which shall measure results, bring in the scientific methods of educational experimentation which have recently occupied the entire field of the elementary school, and show us whether our education, or schooling, is really hitting the mark. We can not measure results until we know what results are demanded by the times and we can not learn whether we are reaching the goal without the new science of inductive educational research.

It seems to me that it is possible at the present time to state such a philosophy of education, in rough outlines at least. We know more or less vaguely what we want. There are certain great criteria upon which we can quite readily agree. Democratic aims and purposes, modern social needs and problems, and local, national and international conditions have been pretty well studied and interpreted. From Plato and Christ down certain great aims and purposes have been caught by educational and social reformers and philosophers on their mounts of transfiguration and have been passed along in books, if not in the schools, to us. It is for us actively to work out and put together without delay purposes which in these astounding times may make America's schools for the training of leaders great creators of an ideal democratic nationality.

II. A REASONABLE PHILOSOPHY

The most fundamental answer which we can give to the problem of what the schools should do for the people is that they should help the people to realize the goal of life. But what is the goal of life? The philosophers tell us that it is individual and social, or world, *happiness*, that it is self-realization and the life of reason; and the Christ said: "I came that ye might have *life* and that more abundantly." The goal of living is living, enriched, ennobled and made as desirable and meaningful as possible. The ultimate value and hence an invaluable is life itself. To put the emphasis on the dynamic, constructive, growing side of living, educators to-day regard as the goal and aim of life and education, social efficiency, or efficiency in promoting individual and social happiness and growth.

Social efficiency is a very good term to use as a criterion when we know what it means and understand that it is a *means* to abundant, happy living for all mankind. In the past this aim where used at all has remained almost entirely unanalyzed into its common factors. We are now ready to state with some degree of finality a fairly satisfactory analysis that helps tremendously in giving definiteness to our aims of education. The factors of social efficiency may be given as five sub-aims, namely:

1. *Vital Efficiency.*—Health, physical development, freedom from correctible physical defects, grace and agility, motor control of various kinds, and general physical fitness. "The first wealth is health."

2. *Vocational Efficiency.*—Industrial, agricultural, commercial, domestic and professional ability for varying groups and a general basis for all.

3. *Avocational Efficiency.*—The right use of leisure, "living as a fine art," wholesome enjoyment and recreation, esthetic appreciation and skill, and individual and social avocations.

4. *Civic Efficiency.*—Citizenship in the community, state, nation and world at

large—world citizenship rather than a too narrow national "patriotism."

5. *Moral Efficiency.*—Ethical insight, skill and responsiveness—social service and "true religion."

Here we have the more or less vaguely felt and definitely expressed aims of education which are vastly influencing our schooling to-day. In no survey of schools and in no theoretical discussion will we find them so analyzed and so expressed, but it is these aims which are more or less consciously used as standards and which are to take the place of the formal-discipline aims previously held. The present vigorous reorganization of secondary education, in so far as it is wisely directed toward solving the principal problems of life and helping the people to realize nobly the goal of life, is being guided by these aims. In the public school as a supplemental, universal, and largely-compulsory agency for all children up to fourteen or sixteen and beyond, an agency dedicated to the welfare and progress of the whole people, that schooling is in general of most worth which best promotes these five aims of education, or factors of social efficiency. By these standards we can test present secondary schools and those that are to follow.

Every subject, every method, and every curriculum in the high school must justify itself by its relative contribution to these five aims, under which we can classify all the problems of life and the principal avenues of individual and social happiness. Anything which can be put into the place of present practises and subjects which better realizes the goal of life for the people must inevitably be substituted. It is time that we ask ourselves to-day when we are running great, expensive secondary schools for all the people such as are furnished at public expense in no other part of the world, what each subject contributes to these aims. Do Greek and Latin better promote health, vocational ability, recreation, citizenship or morality than other subjects which may be put into their place, and just what are these subjects contributing to life and social efficiency? Do algebra and geometry promote these five aims better for all pupils than anything that can be substituted? Can we require of all pupils any subjects which are not very directly and vitally related to the big aims of education? Are not the subjects of hygiene and physical education more closely related to vital efficiency than anything which can be put into their place? Can we develop civic efficiency without teaching citizenship through improved civics, and is there anything more closely related to moral efficiency than applied ethics? Have we any right in a democracy to make civics elective in public high schools? When we put scientific classifications of physical geography and other natural sciences into one side of our balances and the modern general science closely related to the problems of life into the other as subjects to be required of all in the first and second years, which is going to outweigh the other in usefulness in promoting the aims of education? Is the necessity for either reading or speaking modern foreign languages to-day great enough in these United States far removed from Europe to displace other subjects clearly and functionally related to the great aims of education? These are the questions which will not down, and which explain the most rapid transformation of secondary education ever witnessed.

III. HOW PUPILS MAY BE CHANGED IN THE DIRECTION OF THE FIVE AIMS

Before using these aims as standards by which to construct the reorganized high-school curriculum, or typical programs of study, for our democracy, it is desirable to discover and classify also the mental and physical changes which can be made in

youth to achieve these aims both for the individual and for society. Here, on the *mental* side, we enter the field of educational psychology and of methods of teaching. A number of analyses and classifications of these changes have been made by competent investigators, but no one classification has yet become dominant. Professor Yocum has a fivefold classification on the basis of different stages of learning which is one of the best. Professors Thorndike, Bagley and Dewey have others. For our purposes here of establishing a foundation on which to build a program of studies for a modern high school, a brief fourfold classification is fairly and comprehensibly satisfactory. We can change pupils in the direction of helping them to develop through self-activity: *first*, the essential *knowledge*, or insight, necessary to the five types of social efficiency; *second*, the *habits*, or skills, most essential to be learned by actual social participation and drill; *third*, the great *ideals* which must make up the common basis of "like mindedness" for our democracy; and, *fourth*, a group of emotional changes in the way of attitudes, interests, points of view, likes and antipathies, and general emotional responsiveness which may be lumped together as either *appreciations* or interests.

On the *physical* side we enter the field of educational hygiene. The physical changes in the direction of social aims are most obviously along the line of vital efficiency. We can remove enlarged tonsils and adenoids, cut muscles causing strabismus (cross-eye), build up faulty, undeveloped bodies, prevent and correct defective teeth, and, in general, we can take the physical children sent us by parents with their basis of heredity and environmental influences and do more than most schools at present do in preventing race degeneracy and promoting the physical perfection and joy of living which characterized the ancient Athenians. Military preparedness can be combined with general social preparedness and the greatest need of the hour is not for educators who can write good arguments against military training in the schools, but who can take this widespread and determined interest in promoting military efficiency in the schools and, striking while the iron is hot, get our federal government and our legislatures to establish in our schools what for the most part we have never had, first-class agencies for promoting that basis of physical education without which neither military nor general vital efficiency is possible.

What if we do have to have a little more of the military element in this "preparedness" than we at first deem desirable. With all the dangers of a military caste and the development of military ideals, which, however, do not seem to be the outcome of the boy-scout movement—are not the two following propositions true, namely, (1) that by concerted effort we can get bills made laws which place the emphasis almost entirely on general physical education as a basis for general social, including military, efficiency; and (2) that an era of peace following the present conflict will readily permit us to slough off as much of the military features as we think best, still keeping the basic physical development so much neglected and so much needed in the schools of our land. Schoolmen, I think, have too much responded to their first and not their better second thoughts in this matter.

We are taught to utilize for educational ends strong natural tendencies and interests in children, but we are failing to use the same principle for society, yet they are here just as potent. Dr. W. S. Small in the Commissioner of Education's recent annual report and Dr. E. L. Thorndike, in a recent address on "Education for Initiative and Originality," are the only ones I know of who have expressed this point of view. The

Friends Society and the *Journal of Education* have published the letters of a great many educators in opposition to military training—meaning the *traditional* military training which is not contemplated in the best proposed measures.

Social Efficiency	Physical Changes	Mental Changes			
		Knowledge	Habits	Ideals	Appreciations
I. Vital efficiency.....	Removal of adenoids, building up physique	Hygiene	Training in living hygienically. The habits of health	The ideals of health and physical efficiency	The interests and attitudes of health
II. Vocational efficiency...	Physical preparation for vocation	Economics and occupations	The habits and skills of the vocation	Ideals related to industry	The interests and attitudes of vocation
III. Avocational efficiency..	Physical changes due to right avocations	Knowledge of avocations	The habits and skills of avocations and use of leisure	Ideals of recreations and avocations	The interests and attitudes of avocations
IV. Civic efficiency.....	Any physical changes related to citizenship	Civics	The habits of civic participation	Ideals of citizenship	The interests and attitudes of citizenship
V. Moral efficiency.....	Any physical changes related to moral living	Ethics	The habits of the moral life	Ideals of morality and religion	The interests and attitudes of the moral life

Leaving this apparent digression, we see that the four principal types of mental changes to be made in children are those of knowledge, habits, ideals and appreciations. With our five aims arranged vertically at the left of the page and the four types of mental changes arranged across the top of the page we can form a chart into the squares of which we can place the minimum essentials of an education. You will note below that at the left (page turned) we have the five great aims of education with the general aim of social efficiency at the top, while on the right are the physical and mental changes, the latter of four principal types.

The chart is largely self-evident. The knowledge which closely relates to vital efficiency, for example, is hygiene, that relating to civic efficiency is civics, both of which have been almost entirely omitted or neglected in our high schools. Certainly they have not been required of all pupils. Algebra, geometry, Latin, Greek, German, French and other subjects have been considered of more importance, *i. e.*, more closely related to the aims of such schooling. Now we see that with nearly half of two million deaths annually from preventable diseases and widespread and dangerous civic inefficiency all over our land that these stones rejected by the builders of the old curricula must verily become the corner stones of the new edifice. We are witnessing what has happened before in the history of education, the required studies of one age becoming the electives of another, yet never on so great a scale.

It can be seen at once that there are several classes of subject-matter on the basis of their relative tool value in promoting the ends of secondary education, namely:

1. The minimal essentials, the fundamental subjects, or the core curriculum, to be required of all pupils, subjects which lend themselves better than any others in promoting the great educational aims through the possible types of physical and mental changes.

2. Subjects and curricula *beyond* the

minimal essentials, more necessary than any others which can be put in their places for various and varying groups of pupils, such as commercial, industrial, home-economics, normal-training, college-entrance, short-course, and general-education pupils.

3. Optional and elective subjects and subject-matter for those who can do work outside of the core and the differentiated curricula mentioned above.

4. Subjects and subject-matter which should be entirely eliminated from the high-school program of studies, since no one should be permitted to waste time upon them and since they cost the public and pupils in time, energy and money more than they are worth.

5. Subjects which contribute specifically and clearly, with good teaching, to single aims such as hygiene to health and subjects which contribute to several or all five aims, such as general science and English.

Other principles than the above standards are, of course, to be formulated and brought clearly to consciousness in planning our types of activity for high-school pupils. As a supplemental institution, for example, the high school should not attempt to promote aims of education which are already being well met by other agencies. We have never had the principles or standards of the secondary schools of this country stated, strange to say, except in a more or less indefinite way in some of the school-survey reports, one of the best being that of New York City. Consequently, I offer here some of these principles which, I think, you will agree must guide us in making our high schools meet the needs of the people who employ us to educate, not merely to school, their children. Schooling is not necessarily educative. It may, as in some eastern countries, be merely some laborious perfunctory performance not fitting but rather unfitting youth to meet the problems of life in an effective manner. After stating these principles which include those already given we shall submit for your criticism two or three tentative programs of study for four-, five- and six-year high schools with from two teachers to many.

IV. PRINCIPLES UNDERLYING THE HIGH-SCHOOL'S PROGRAM OF STUDIES

1. The subject-matter, curricula and general program of studies must contribute clearly and economically to the end of education, namely, social efficiency. (If any hidden, indirect contribution, disciplinary or other, more than any other which can be put into its place, can be proved possible, it may, of course, be utilized, but preference should be given to those subjects which surely do contribute, or can be made to contribute, clearly and plainly with the teachers, money and time and type of pupils obtainable.)

2. The elements, factors or subordinate aims, of social efficiency are vital, vocational, avocational, civic and moral efficiency.

3. The mental changes which are possible in children in the direction of social aims are those of knowledge, habits, ideals and appreciations.

4. The program of studies must not include subjects which *can not* be taught in the school. Some claim that sex hygiene and education and much of domestic and other vocational education can not possibly be taught in the high school.

5. Nothing should be included for all or a few which is being effectively taught to them by *outside* agencies.

6. The subject-matter must be within the grasp and *comprehension* of the pupils—must be related to their stages of growth.

7. The material must be selected with reference to individual, community, national and world *needs*.

8. The subject-matter must be such as will *appeal* to the pupils, if possible, as in-

trinsically and instrumentally worth while, not neglecting and not overemphasizing the "value of the life-career motive" suggested by Ex-president Eliot.

9. Subject-matter must be organized (1) as required work for all, (2) as differentiated curricula for different groups, (3) as optional matter which the community can afford to teach and pupils to take, and (4) as cycles of work on the basis of elimination from school and best methods of learning.

10. Subjects of value principally for more advanced work only, such as the college-entrance subjects like the non-English languages and the non-arithmetical mathematics, should be *postponed* in the course as long as possible, say, to the last two years (1) in order that students looking to college entrance who are nevertheless eliminated may not be compelled to take them unnecessarily, (2) to avoid the great waste of relearning in college, and (3) for other reasons I have given elsewhere.[1]

11. Only those subjects should be *required of all* pupils which have a clear and unmistakable contribution to the general aim of social efficiency.

12. The subject-matter must be arranged on a socio-psychological rather than on a scientific, logical, classification basis, *e. g.*, general science instead of formal science, at least in the earlier years.

13. Some subject-matter must be selected on the basis of its *availability*—the flowers of botany, plants of agriculture, at certain times of the year, for example.

14. Requirements must be made on the basis of scientific knowledge of what a pupil can do in a given length of time to make changes of permanent worth. *Not all* knowledge, habits, ideals and appreciations but only those of most worth and within the capacity and time available of the pupils, is the aim.

19. Some subject-matter must, unfortunately, be selected with reference to the demands of conservative, and, in some cases reactionary, *higher authorities* in the form of colleges and state-education authorities. The time is rapidly coming, however, when such demands will be more in line with the best educational policy.

20. Subject-matter must be selected sometimes more for its scaffolding, or *preparatory*, than for its intrinsic value. Its main value may be that it introduces and connects up further learning with what has gone before.

Other principles have been made explicit elsewhere, but these are the dominant ones.

V. THE PROPOSED PROGRAMS OF STUDY

Now on the basis of the above and other principles we propose the following program of study for your criticism and trial. No more important work can be done at the present time than to get down to brass tacks and develop by analysis, criticism and experiment, on the basis of principles readily ascertainable, the typical programs of studies for American high schools, and then to get together and work as a like-minded, organized group of educators for the establishment of such courses in American high schools. You will note that I give preference in the single program presented here to the high school which begins with the seventh year of the child's school life. This, I believe, will soon be the high-school characteristic of American schools, in place of the old eight-four plan which has little but tradition to support it. A four-year and a six-year program have also been developed. Programs for small, one-to-four-teacher schools are under way. Any criticisms my readers can send me on these courses I shall greatly appreciate, for they are only in a state of evolution.

[1] Article on "The Elimination of the Non-English Languages and the Non-arithmetical Mathematics from College-Entrance Requirements," in SCHOOL AND SOCIETY for April 15, 1916.

A FIVE- OR SIX-YEAR HIGH-SCHOOL PROGRAM OF STUDIES

(The sixth year has intentionally been left vacant)

Probably Seven Fifty-minute Periods Daily		I (7)	II (8)	III (1)	IV (2)	V (3)	VI (4)
Assembly—30 minutes daily		5	5	5	5	5	
Study period for all pupils		5	5	5	5	5	
Required of all pupils "Core curriculum"	English—comp. lit., pub. speaking	5	5	5	5	5	
	Hygiene—personal, public, indus.	1	1	1	1	2	
	Physical education and recreation	2	2	2	2	2	
	Music and fine art (drawing), esthet. appr.	2	2	2	2	2	
	Vocational, ed'n., incl. hsld. arts	4	4	5			
	Arithmetic	5	5				
	Geography and elementary science	4	2				
	History, U. S.	4	4				
	Penmanship	3	–				
	Community civics and survey of vocations		5				
	General science			5			
	Applied ethics and el. sociology			5			
	General history, or to 1700			5			
	Another science, or more general science				5		
	United States history				5		
	Gov. civics and el. economics					5	
	Total required periods, excl. study	30	30	30	20	15	
	Elective periods	0	0	0	10	15	
1. General course	Probably largely optional, with educational guidance. Ten hours in fourth and fifteen hours in fifth years						
2. Industrial course	Business arithmetic and accounts				5		
	Commercial geography				5		
	Shop work and other studies					15	
3. Commercial course	Business arithmetic and business English				5		
	Bookkeeping				5	5	
	Stenography				5	5	
	Typewriting				5	5	
4. Home-economics course	Sewing				5		
	Cooking				5	5	
	Household accounts and laundry					5	
	Home mgt., bacteriology, literature					5	
5. Agricultural course	Elementary agriculture				5		
	Farm arithmetic and accounts				5		
	Rural economics					5	
	Other studies					10	
6. Normal course	Elementary psychology				5		
	History of education				5		
	Class management and school subjects					5	
	Observation and practise					5	
	Elective					5	
7. College-entrance course	A foreign language				5	5	
	Algebra				5		
	Geometry					5	
	Elective					5	

With good departmental teaching and the restriction of certain college-entrance subjects to college-entrance students, a good preparation for college or for life can be made in five years, beginning with the seventh year. The sixth year should be counted by colleges as junior-college work if given.

The fifty-minute recitation period does not unnecessarily lengthen the school day, and provides time in many subjects for supervised study as well as recitation. If the day begins at 8:30, and five minutes are allowed between periods, for relaxation and passing, the morning may close at 11:40 with three periods, the afternoon at 4:30 with four periods. This makes a rather long day and a large number of subjects, but most study is provided for at school and several subjects are of a recreational character. The program is only suggestive and may be modified to meet local conditions. The small high school can offer little more than the required core of subjects. The typical (median) high school of Pennsylvania, for example, has two or three teachers. Only about 15 per cent. have more than five teachers.

Not only are the subjects of these programs of study to be selected for their relative contribution to the aims of education, but the selection and reorganization of the matter within the subjects and the methods of teaching, are also to be so guided. Elsewhere I have tried to suggest what the application of these standards will do for the selection of literature in the high school which has previously taken literature on the basis of other standards than the aims of education, such as literary technique and historical sequence.[2] What the application of these aims, even unexplicitly, is doing for the selection, organization and teaching of the natural sciences in the high schools is strikingly apparent. Examination of these books, and especially the later ones such as Elhuff's, for instance, show subject-matter selected and organized very largely on the principles above laid down. It will probably happen that this general science will be begun in the seventh grade on a three-year sequence or less. Professor Dewey and others advocate general science and no other for our high schools.

The writer is ready to defend the extensive requirements for all, with the possible exception of short-course pupils going into industry; and even for them, what can the average school do that is more practical and valuable ultimately than to teach the essentials outlined here for all? What can we add of more value and what would we displace? The last two or three years can easily be made a cycle for the senior high school. One year is going to be cut from our period of preparation for college. The seven-year elementary schools at the University of Chicago, at Kansas City, and elsewhere, are "making good." It may work out that the sixth year will be counted by the more progressive colleges as junior-college work. Where they accept pupils from eleven-year courses they are already doing it. Our problem is to construct a high-school system that educates and "hits the mark." The aims of education are to be aimed at, not merely used for purposes of discussion.

L. W. RAPEER
PENNSYLVANIA STATE COLLEGE

[2] In the *English Journal* for June, 1916, and in the *Proceedings of the Pennsylvania State Education Association* for 1915.

STANDING OF UNDERGRADUATES AND ALUMNI

IN view of the widespread idea among college students and alumni that the scholastic standing of the undergraduate student has little or no relation to the standing of the alumnus, it has seemed very desirable to the writer that a further study should be made for the purpose of throwing light upon this question. It is important for all those connected with our colleges to know more definitely than at present what relation actually exists be-

tween the standing of undergraduates in the classroom and among their fellows in the world of the professions and business.

The standard of success is, of course, a difficult one to establish. In practically all the studies made in the United States it has been measured either by the appearance of the name in "Who's Who in America," or by the personal estimates of classmates or others. It is evident that there are objections to both these criteria of success, but nevertheless they are perhaps the only available ones. While it can not be supposed for a minute that the college exists for the turning out of distinguished men, it is true that it should turn out efficient workers in the world who have a certain standing among their fellows and who are in some slight degree the leaders in their respective communities, holding positions of respect and responsibility more generally than those men who have not had the advantage of the prolonged training of college.

Facts upon this question may have some bearing upon the standards of scholarship in our colleges, for it is very likely that these standards are influenced by the prevalence among alumni particularly that it is wiser for the undergraduate not to study too assiduously, but simply to get through. If this tradition is a sound one, we who direct students and lay out courses of study should pause to inquire whether we are relating our educational methods sufficiently to the probable careers of our alumni. I do not mean that we should make courses more practical, or that laboratory or shop work is needed to relate our educational methods to life, but rather that we should train students so as to bring out more effectively their powers of initiative, of cooperation, their loyalty to ideals, steadfastness of purpose, diligence, intensity of application —factors which enter largely into the matter of success. If the tradition is unfounded, the actual facts should be presented to students and alumni.

One of the earliest studies on the relation of undergraduate and alumni standing was made by Karl Pearson, who compared the rank in the B.A. examinations of Oxford students and their subsequent attainment in the professions, the law and the church. He found that the higher the classification of the man at the Oxford examinations, the brighter were his prospects of attaining distinction in the church. The percentage of distinguished men declines regularly from 68 of the first class in rank in the examinations to 37 in the second, 32 in the third, 29 in the fourth, 21 in the "pass degree," and 9 among those who failed to obtain a degree. A similar investigation as regards lawyers gave essentially the same result. The measure of success here was taken to be the holding of public office under the government. The percentages of men distinguished in the law fell uniformly from 46 of the first class men to 15 of the "no degree" men. Such results, so striking in Great Britain, however, may not necessarily hold true in America, where the methods of teaching in the colleges and where social conditions are so different.

President Lowell in the *Educational Review* for 1911 gives the results of an exhaustive study of Harvard students in the law and the medical schools of that university, and has shown very conclusively, among other things, that the chance of winning the distinction of graduating from the law school *cum laude* was three times as great for the man obtaining the B.A. *cum laude*, as for the man obtaining the B.A. without distinction; six times as great for the B.A. *magna cum laude*, and nine times as great for the B.A. *summa cum laude*. The results in the medical school show the same tendency.

In a recent article by President Foster, of Reed College, entitled "Should Students

Study?" published in *Harper's Magazine*, the affirmative answer to this question is very certainly made on the basis of a number of studies some of which had not previously been published. Among the groups referred to by President Foster may be mentioned the Harvard class of 1894, from which had been picked independently by the dean of the college, the secretary of the alumni association, and a member of the class who was in especially close touch with his class, twenty-three men as the most distinguished of the class. In making their choices these judges were allowed to use their own definition of success, with the single restriction that success due principally to family wealth and position was not to be considered. When the standing of these twenty-three was compared with that of twenty-three men chosen at random from the same class, it was found that the successful men had 196 A's to their credit while the men picked at random had only 56.

An investigation based upon the graduates of the first twenty-four classes (1878–1901) of the University of Oregon showed that the scholarship records of the successful men according to three judges proved 53 per cent. to have been good students, and 17 per cent. weak students, in contrast to the records of the other alumni among whom 52 per cent. had been weak students and only 12 per cent. had been good students.

Engineering students in the Kansas State Agricultural College have been found by the dean of that institution, according to President Foster, to earn salaries which are, in general, proportional to their standing in college.

Professor Nicholson has found that of the 420 living graduates of the ten Wesleyan University classes from 1890 to 1899 who graduated with the highest honors, 60 per cent. are now regarded as distinguished either by appearing in "Who's Who" or by the judgment of their classmates; of those who were elected to Phi Beta Kappa, 30 per cent.; of those who won no superior scholarship honors, only 11 per cent. Of the men now living who graduated from Wesleyan between 1860 and 1889, 16 per cent. are listed in "Who's Who"; of those who received high honors in scholarship during this period, 50 per cent., of those who attained no distinction as scholars, only 10 per cent.

The records of 1,667 graduates of Wesleyan University prove the same thing, that of the two or three leading scholars of each class, one out of two will become distinguished; of the Phi Beta Kappa men, one out of three, and of the rest, one out of ten.

The records of living graduates of some 22 colleges, according to Professor E. G. Dexter, show that about 2 per cent. appear in "Who's Who," while of the honor scholars, there are 5.9 per cent.—the chances of success judged by this standard therefore are about three times those of a random sample. Of the Yale valedictorians 56 per cent. are included in "Who's Who"; that is to say, the man at the head of his class appears to have more than 25 times as many chances of distinction as the man selected at random from his classmates.

Of the 13,705 living alumni of two of the larger New England colleges, 5.4 per cent. of those who graduated in the first tenth of the class are included in "Who's Who" and only 1.8 per cent. of those who graduated in the last tenth.

It was for the purpose of further testing the validity of these results quoted by President Foster, and of bringing home to the students of Lafayette College the close relationship between scholarly achievement and success that this study was begun. It is hoped that more extensive and accurate studies may be undertaken at other institutions in order that at least those who

do believe in undergraduate scholarship may have the facts to support their belief.

As students and alumni generally are not willing to limit the successful alumni simply to those who appear in "Who's Who," and do not regard the criterion as sufficiently well established, it was especially desirable to make the criterion of success less rigid and to allow the alumni to decide upon the successful men. Accordingly, with the help of several colleagues with a very broad acquaintance among the alumni generally, ten men from each class between 1876 and 1905 inclusive of Lafayette College were selected who would probably be in a position to know their classmates best and who kept in closest touch with them. To each of these men a circular letter was addressed asking for the names of the five most successful men in their respective classes. The only restriction placed upon the individual interpretation of the term successful was that the man who had simply inherited wealth or position and who had done nothing worth while with his inheritance should not be considered successful. Notwithstanding the fact that it was specifically mentioned in the circular that only graduates were to be included, there were 30 non-graduates mentioned. It was also stated in the circular that no names would be published which might prove embarrassing in some instances. Although nothing was said about the purpose of correlating standing as an undergraduate with success as an alumnus, some of the judges in their letters took the trouble to say that such a correlation was utterly futile, and a few regarded men as successful because they had done so much better than any one expected them to do when they were in college. Of the three hundred circular letters sent out, replies were received from 171 alumni, but of these only 123 gave the names of five successful classmates. In some cases the writers explained that they were out of touch with their class, or that they were incapable of passing judgment on their classmates, and a few had scruples against a supposed injustice to many worthy men who had not become wealthy or conspicuous. In all, the names of 343 men were received in the replies, but because of failure to graduate on the part of 30 and imperfections of scholarship records, several more names had to be eliminated, so that the total number of successful men studied was further reduced to 301. The total number of alumni during this time was 1,593.

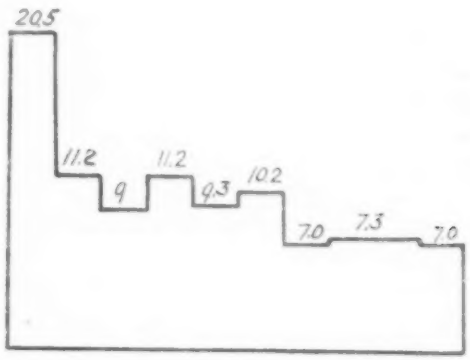
The criterion of success thus chosen is open to serious criticism, it must be admitted. In the first place, the task of picking out the most successful men in a class in which a large number of callings are represented is extremely difficult; insufficient knowledge of achievement and personal prejudice enter in to make the results less certain. This defect is of course more apparent in the case of those men who are regarded as successful by a single classmate. The standard of success is certainly low; nearly one fifth of all the alumni between 1876 and 1905 are the most successful men. On the other hand, it must be admitted that the standard here attained agrees pretty closely with that of the general run of the alumni, inasmuch as a considerable number of alumni have used their own standards of success in each case.

The standing of the men was obtained from the college records, which besides giving the percentage standing of each man also gives his relative rank in the class. In order to be able to compare classes having different numbers of members, the rank in class was reduced to a percentage basis so that the man leading his class has a stand of 1 and the man at the foot of his class has a stand of 100.

The relative standing of these successful men in their classes can best be appreciated

by means of a graph. In Chart I., which shows the rank in their classes of all these men regarded as successful by one or more of their classmates, the successive tenths of the class are laid off on the abscissa axis, the percentage of the total number of successful alumni in each tenth of the class is shown on the ordinate axis. It is thus seen that 20.5 per cent. stood in the first tenth of the class, 11.2 per cent. in the second, and so on to 7 per cent. in the last tenth. If the class is divided into fifths instead of tenths, the decline in the chances of success in passing from the head of the class is more regular and convincing. The percentages according to fifths is as follows: 31.7, 20.2, 19.5, 14.3 and 14.3. It is interesting to note that the upper half of the class furnishes 61.2 per cent. of the successful men as against 38.8 per cent. furnished by the last half.

In order to make the criterion of success more strict, and the group more select, the total number of successful alumni was reduced in several ways. First, those men were eliminated who were regarded as successful by only a single classmate. The number was reduced by this means to 150. Their percentage standing in their classes is shown in Chart II., which is constructed in the same way as the previous one. The superiority of the first tenth is even more striking than when the larger number of successful men is considered, 26 per cent. of this smaller number being honor men. Of particular interest, however, is the rise in the percentage of successful men in the last fifth of the class. The men who just manage to graduate make a better showing than those who have a slight margin of safety. According to this standard, their chance of success is a little better than one third that of the first tenth of the class, while that of the eighth tenth is only one eighth.



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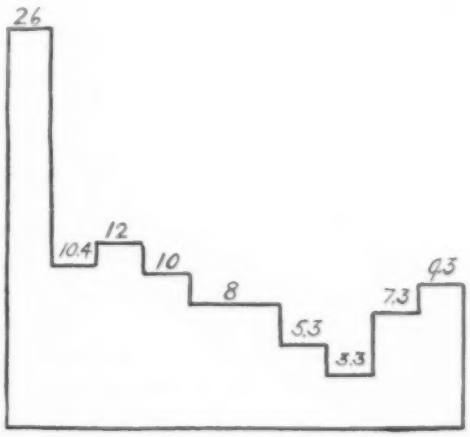

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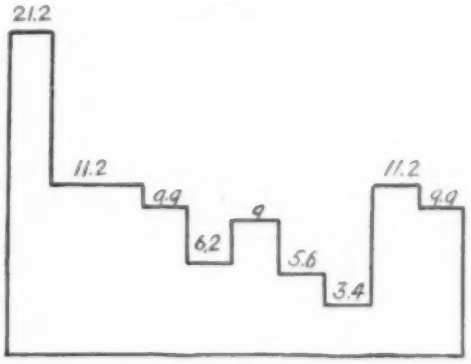

III

The number of successful men was further diminished by selecting only those men mentioned by all their classmates or all

but one, but in every case called successful by more than a single class mate. There were 89 in all who attained this distinction and their distribution is shown in Chart III. The leaders of the class apparently lose slightly by this further restriction, since only 21.2 per cent. of the total number are found in the first tenth of their classes.

The second and third tenths are essentially the same as in the group chosen by more than a single voter; and in fact, the differences are not very significant until we come to the last two tenths, where in the more restricted group there are 21.1 per cent. as against only 16.6 per cent. in the larger group. It would seem that this more careful limitation of the successful men has favored somewhat the last fifth of the class.

Looked at from a slightly different point of view, the value of attention to college work is also indicated. In the thirty classes covered by this study, 15 of the men who stood first in their classes have been regarded as successful. In the more restricted group made up of those receiving more than a single note, there were 8 first-rank men, while in the much smaller group composed essentially of the unanimous choice of those voting there were 6. The ratio, therefore, of first rankers to the total number of men in the group increases from 5 per cent. to 5.3 per cent., to 6.7 per cent. —a result which indicates that the higher the standard of success the greater is the chance of the class leader's being regarded successful in after life.

The frequency with which successful alumni appear in the last fifth of the class, as can be seen by inspection of Charts I.–III., seems to afford some slight basis for the tradition shared by students, alumni, and, most unfortunately, by some college teachers, that the low-stand men in college rank high later in life. I suspect, however, that this excess of men in the lowest fifth of the class is due to the more or less unconscious defenders of the low-stand men. At least one alumnus in reply to the letter stated in so many words that he had called successful one man who had done poorly in college because he had so far surpassed the promise of his college record!

With a view, however, of ascertaining more exactly the origin of the notion that classroom and alumni success bear an inverse relation to each other, the grouping in their classes of alumni in the different walks of life was determined. The numbers involved were so small in some cases, and the distribution in class so irregular, that the results probably have little or no value. It may be of interest, nevertheless, to mention several of the more significant facts disclosed. Of the 301 successful men, it was found that 65 are practising law, 55 are educators, 50 are engaged in business, 42 are engineers, 40 are ministers, 29 are doctors, 11 are writers and journalists, and 10 are in scientific work exclusive of engineering and education. Of the successful educators, 62 per cent. stood in the first fifth of the class, 20 in the second, 5.5 in the third, 9.1 in the fourth, and 3.6 in the last fifth. The distribution of the educators conforms most nearly to expectations; namely, that there is a gradual decline in the numbers of successful men as one passes from the head to the foot of the class.

The business men formed the only group in which there appeared to be an inverse ratio between class stand and alumni success. Among these the successive fifths of the class were represented, respectively, by 16, 18, 22, 22, 22 per cent. This group affords the only basis for the belief which has been mentioned. To many men, of course, success means nothing more than financial success, and as business affords greater opportunities for financial advance-

ment than any other calling, the successful man is more often the business man. It must also be borne in mind that the large number of men at the foot of the class who go into business do so because they recognize that the learned professions are closed to them largely because of their scholarly failure. In this way business careers open up to many men when other avenues are closed. This may account partly for the larger percentage of low-stand men who prove successful in business. It must also, I think, be kept in mind that success in business often depends somewhat upon geniality and affability, which we all know too well frequently lead to the undoing of a student's college career.

In conclusion it may be said that the first tenth of the class on the average is more likely to be successful in the eyes of classmates than the lower ranks, but that the differences between these lower ranks is inconstant and not significant. While a high stand does not carry with it any sound guarantee of success in after life, on the average it is wise to attain that rank. Except in a business career the poor students apparently have a generally smaller chance of success than the leaders in the classroom.

B. W. KUNKEL

LAFAYETTE COLLEGE

EDUCATIONAL EVENTS

APPROPRIATIONS MADE BY THE ROCKEFELLER FOUNDATION

THE Rockefeller Foundation announced on May 3 appropriations of $875,000 for purposes in connection with the war. Of this, $475,000 will be spent in America for medical research and humanitarian aid as the beginning of the foundation's work in the war with Germany. The remaining $400,000 will go to continue relief activities now being carried on abroad.

To aid the work of the Young Men's Christian Association in the training camps to be established for the army and navy, $200,000 of the appropriation has been set aside. A budget of $3,000,000 is sought by the National War Council of the Young Men's Christian Associations of the United States. This work will be similar to that carried on by the International Committee of the Y. M. C. A. in war camps abroad, and in American camps on the Mexican border last year.

The Rockefeller Institute for Medical Research gets $200,000 for the Carrel Hospital to be established during the next few months in connection with it. This model hospital of 100 beds under the direction of Dr. Alexis Carrel, is to be used to teach the new methods of surgical treatment for infected wounds, worked out by Dr. Carrel and Dr. Dakin in France. American military surgeons and doctors will thus have the benefit of the three year's experience in war surgery abroad.

The Rockefeller Institute receives an additional $60,000 for instructing military and other surgeons in new methods of diagnosis, for the preparation of serums similar to those it has sent abroad, for use in army camps, and for the purpose of finding improved means of treating peritonitis and shock.

Funds were also provided for thorough study abroad of mental diseases among soldiers, and the kinds of provision needed for their care at the front and in base hospitals. This investigation is to be undertaken by Dr. Thomas W. Salmon, medical director of the National Committee for Mental Hygiene, who is to supervise American psychiatric hospitals to be established by the government. Dr. Salmon will develop methods of receiving, classifying and distributing the various kinds of mental and nervous disorders.

To provide buildings for a Naval Psychiatric Hospital, to be erected on the grounds of the United States Marine Hospital in New York, the foundation has appropriated $15,000. The buildings are to be erected by the National Committee for Mental Hygiene and operated by the United States Public Health Service.

During the month of April the foundation made gifts and pledges for European war relief amounting to $450,000. This brings the total appropriations for European relief to $4,181,952.64.

Included in the April total is a conditional pledge of $300,000 to the International Committee of Young Men's Christian Associations for welfare work in the prison camps and in the armies of the belligerent nations.

Appropriations of $50,000 each were made in the months of April and May to the Commission for Relief in Belgium. These funds are provided to furnish supplementary rations to undernourished Belgian children.

THE PENNSYLVANIA STATE BOARD OF EDUCATION AND THE WAR

THE State Board of Education, convinced of the imperative need of husbanding all the resources of the commonwealth, urges upon the school officials and the great army of pupils who have talent or capacity for service of any type, the patriotic duty of making their contribution in this hour of national need. Since there is great scarcity of help on farms and since the School Code provides that directors may excuse the absence of pupils for urgent reasons, therefore be it

Resolved, That in the opinion of the State Board of Education during the present crisis the need of the pupil's service on the farm and in trucking, gardening and allied industries should be construed as a valid excuse for absence from school and that in such cases compulsory attendance should not be enforced against any pupil for the time during which he may be employed in work upon the farm and in the garden.

Be it further resolved, That the pupils in the public schools above the age of twelve years, whose standing is such that there will be no question of their promotion or graduation and who may regularly engage in agriculture, shall have these facts considered in lieu of the full completion of the term's work; this provision to apply only to the work of the term ending June, 1917. School authorities are urged to assist pupils in making up work essential to promotion; this right to promotion to be based upon the ability to do the work of the next grade, and

Be it further resolved, That the State Board of Education, through its proper officers, conduct a careful survey of the industrial and agricultural schools of the state for the purpose of ascertaining in what way they may contribute through their equipment, machinery and products during the continuance of the present war.

CHANGES IN REQUIREMENTS FOR ADMISSION TO THE UNIVERSITY OF CINCINNATI

THE faculty of the College of Liberal Arts of the University of Cincinnati recently reduced the number of units required for admission to fifteen units allowing no conditioned units. The action regarding elimination of conditions was taken in view of the fact that conditioned students have been shown by careful investigation, to be inferior to those who enter without condition. The fifteen units must be distributed as follows:

Group 1:

English—Three units.

Mathematics—One unit in algebra and one unit in plane geometry.

History—One unit.

Language—Three units, from the five languages: Latin, Greek, French, German, Spanish; two units must be in the same language. Candidates who intend to pursue the study of Latin in the university must present four units in Latin.

Group 2:

In addition to these specific requirements the candidate must offer three units in English, mathematics, foreign language, history, physics, chemistry, zoology, physiology, botany, physical geography and astronomy, under the regulations as to the maximum and minimum number of units accepted for admission and the character of the work to be completed in each subject described below.

Group 3:

The remaining three units shall constitute a "free margin"; *i. e.*, the university will accept for admission any three units which the secondary schools themselves credit toward graduation and which are given in conformity to the standards adopted by the North Central Association of Colleges and Secondary Schools. No fraction of a unit other than one half shall be recognized.

The foregoing changes represent a compromise between several contrasting policies. The new requirement retains the principle of specific requirements in the first group. It retains in the second group the principle of emphasizing certain fundamental subjects at the same time allowing considerable election within the group. In the third group is introduced the principle of "free margin." In other words the high schools may offer any subject which they themselves recognize for graduation, the amount of such subjects equals

one fifth of the total requirements. This allows the high schools some freedom in the making of their courses according to individual and community needs and at the same time relieves secondary schools from assuming the burden of proof when new subjects call for recognition. It is believed that such a compromise of principles which have been emphasized in the history of the relationship between secondary schools and colleges will insure a well-rounded course for every student.

STANFORD UNIVERSITY SCHOOL OF EDUCATION

IN accordance with the formal approval of the board of trustees of Stanford University at its monthly meeting in San Francisco on April 28, the university will organize a school of education next year. This will be the third professional school of the university, the law school and the school of medicine being the others.

The plan of the new school, as worked out by the president of the university and various faculty committees interested, provides for a professional school for the training of teachers and school officers, the work to begin with the junior year in college. The department of education in the university will continue its organization as heretofore, and becomes a part of the school of education, the executive head of the department, Dr. Ellwood P. Cubberley becoming dean of the school.

The faculty of the school of education will consist of the president of the university as president of the school, the faculty of the department of education, the instructors in other departments or schools who give special courses designed for the training of teachers in their subjects, one representative from each non-professional department of the university, which handles a subject taught in secondary schools, and also at the president's discretion members of departments already represented if they teach distinct divisions of work important in the preparation of secondary school teachers.

The curriculum of the school of education will include all courses offered by the department of education and all those in other departments intended to prepare students to teach in intermediate schools, high schools and normal schools.

The school of education will include as undergraduates all students of the department of education and all students studying to qualify to teach manual arts or physical training. All other undergraduates preparing for teaching will continue during their undergraduate years in the departments dealing with their special subjects. Among graduate students the school of education will take those who desire to emphasize the pedagogical side of their preparation or to devote themselves to professional studies in the field of education, and those who are seeking recommendation for a high-school teacher's certificate, but are not candidates for a higher academic degree. Graduate students who desire to emphasize the subject-matter side of their studies in preparation for teaching will remain in their special departments, and the direction of their studies will rest with those departments.

The department of education will itself hereafter accept as undergraduate students only those who have reached junior standing and are graduates of normal schools or experienced teachers who desire to emphasize the professional side of education. Others who desire to enter the school of education will do so by joining the department concerned with the subjects they are particularly interested in.

It is possible that the faculty later may provide for a special professional degree in the school of education, distinct from the M.A. of the ordinary advanced student.

EDUCATIONAL NOTES AND NEWS

MR. FRED M. HUNTER, of Lincoln, Nebraska, is superintendent of schools at Oakland, Cal., at a salary of $8,000.

DR. CHARLES A. WAGNER, state commissioner of education of Delaware, has been appointed superintendent of schools at Chester, Pa., at a salary of $3,500.

SUPERINTENDENT HENRY C. JOHNSON, of Aberdeen, South Dakota, has been elected to be superintendent of schools at Ogden, Utah.

FRANK W. BALLOU has been appointed assistant superintendent of schools by the Boston school committee.

PRESIDENT JOHN A. H. KEITH, for ten years president of the State Normal School at Oshkosh, Wisconsin, has been elected to the presidency of the State Normal School at Indiana, Pennsylvania. It is said that the salary is $7,500.

DR. LORIN STUCKY, professor of sociology and economics at the University of Iowa, has been elected president of Sayre College at Lexington, Ky., the oldest Presbyterian school in the south.

APPOINTED commissioner on the Ohio State Employment Bureau, Professor Matthew B. Hammond, of the department of economics of the Ohio State University, has left, accompanied by three students who will act as office assistants in his employment work throughout the state.

FRANCIS WAYLAND SHEPARDSON, associate professor of American history in the University of Chicago, has been appointed by Governor Frank O. Lowden, of Illinois, to be director of the department of registration and education, one of the nine departments under which the administrative work of the state has been grouped. This new administrative organization is to go into effect under the new civic code of Illinois on July 1. The registration phase of Director Shepardson's department will include the work now covered by a number of separate boards of examiners, such as those for medicine, pharmacy, etc. On the educational side the department covers the general work of the five normal schools of the state, that of the state geological survey, the state museum of natural history, and the work in botany, zoology, entomology, bacteriology, etc., some of which is now being carried on in connection with the State University at Champaign.

PROFESSOR A. W. GILBERT, of Cornell University, recently appointed to the committee on mobilization of school boys for farm service, a sub-committee of the public safety committee, has visited forty cities and towns and has found the farmers enthusiastic over the plan to have high-school boys between the ages of sixteen and eighteen years work for them during the summer months. He reports that the farmers will be only too glad to use the boys to make up for the shortage of farm labor, and he also reports that the boys are enthusiastic about the plan. In Melrose, out of 150 boys eligible for the work, 125 have volunteered their services. The committee declares that it would be ready on May 1 to send these boys out to the farms. The farmers who require help are being listed as well as the boys who are willing to volunteer their services. It is probable that a zone system will be established whereby the boys will be taken from cities to the outlying farming districts.

MR. H. J. MAYNARD, of the Indian civil service, has been appointed vice-chancellor of the Punjab University in succession to the Rev. Dr. Ewing, principal of the Forman Christian College.

THE Duke of Richmond and Gordon has been elected chancellor of Aberdeen University in succession to the late Lord Elgin.

PROFESSOR CHARLES PHILLIPS CHIPMAN, for five years librarian of Colby College, has tendered his resignation to the trustees to accept a business position. He is a graduate of Colby and one of the founders and the present editor of the *Colby Alumnus*.

WILLIAM H. WHITING, for twenty-seven years principal of the high school at Greenfield, Mass., and for the past six years vice-principal and teacher of Latin, has retired from active service.

LEAVE of absence has been granted to Professor Addison Webster Moore, of the department of philosophy of the University of Chicago, for the spring quarter of 1918. Professor Moore will lecture at Harvard during the second semester, beginning in February.

WALTON H. HAMILTON has been appointed George Daniel Olds professor of economics at Amherst College.

ASSOCIATE PROFESSOR GERTRUDE DUDLEY, director of physical culture at the University of Chicago, has been requested by Columbia

University, to organize the department of physical education in Barnard College. Miss Dudley has been granted leave of absence for one year, beginning on October 1, 1917.

THE position which has remained vacant in the Smith College department of zoology since the resignation of Miss Anna G. Newell in June, 1916, is to be filled by Howard Parshley, who will rank as assistant professor. He has been instructor in the University of Maine and is now taking graduate work at the Bussey Institute, Harvard University.

THE French department of Smith College has secured for next year the services of Professor Mathurin M. Dondo, a graduate of the University of Rennes, France, and now of Columbia University.

THE board of overseers of Harvard University has accepted the resignation of Kuno Francke, professor of the history of German culture and curator of the Germanic Museum. Dr. Francke has been made professor emeritus and honorary curator of the museum.

FRANKLIN H. GIDDINGS, professor of sociology and history of civilization at Columbia University, lectured at Clark College on May 1, on "Americanism in War and Peace." This is the first of the annual lectures established by a fund raised by the alumni in memory of Carroll D. Wright, the first president of Clark College.

DR. HENRY SUZZALLO, president of the University of Washington, has been chosen by Governor Lister to represent the state of Washington at the war carnival in Vancouver, B. C. On May 3, which is American day, President Suzzallo will make a public address on some phase of patriotism.

DURING the week beginning April 23, Professor Eugene C. Bingham, of Lafayette College, gave before the department of chemistry of the Johns Hopkins University, a series of lectures on viscosity and fluidity.

DR. CHARLES W. ELIOT, president emeritus of Harvard University, was chosen president of the Boston Latin School Association at its annual meeting on May 3. Other officers elected were: Vice-president, Dr. Charles M. Green; librarian, Henry Pennypacker; treasurer, Thomas T. Baldwin; secretary, Allan H. Whitman; standing committee, Grenville H. Norcross, Henry M. Williams, Charles H. Slattery, David A. Ellis and J. Arthur Moir.

THE sudden death is announced of W. L. Mayo, head of the East Texas State Normal School.

HENRY MARTYN SEELY, who occupied the chair of chemistry and natural history in Middlebury College from 1861 to 1895, and had since been professor emeritus, died on May 4, in his eighty-ninth year.

PRESIDENT JOHN GRIER HIBBEN has received a gift of money (the amount of which is not stated) from friends of the university, to be used in supplementing the salaries of professors who receive less than $3,000 a year.

THE American Board of Commissioners for Foreign Missions and Wheaton College, at Wheaton, Ill., are made principal beneficiaries under terms of the will of Charles Hoamer Case. The estate is valued at $650,000. The college, however, must obtain a permanent paid in endowment of $200,000 within ten years from other sources or its share will be divided equally between the American Missionary Society and the Congregational Missionary Society.

TWENTY-FIVE thousand dollars annually hereafter has just been appropriated by the legislature of Iowa to finance child-welfare research at the State University. Arrangements are now being made to begin the work July 1. This fund came to the university as the result of a demand made by club women of the state for more work for child betterment. In their campaign they profited by the excellent advice of Dean C. E. Seashore, head of the university's department of psychology. The work to be done at the Iowa State University is said to be unique in that it will be the first important undertaking, in any way other than by education, of a state to finance without restriction scientific effort toward betterment of the condition of the normal child. Millions of dollars have been spent by the state for defec-

tives but heretofore practically nothing for the child who is well.

Mr. Henry Musgrave proposes to contribute a sum of £10,000 to Queen's University, Belfast, to endow a chair in connection with Russian language and literature.

Mr. Hendy Musgrave, of Drumglass House, Belfast, has endowed a chair of Russian language and literature at Queen's University, Ireland. For this purpose he has offered to the Senate a gift of £10,000.

At Cambridge University a memorial has been started for signature reopening the question of military training as part of education. In May, 1914, a memorial bearing nearly 1,800 signatures was presented to the council in favor of exacting some form of military training as a qualification for the first degree. In consequence of the war the discussion of the proposals was postponed, but in view of the appointment of a syndicate to consider the studies and examinations of students after the war the memorialists suggest that the present is a fitting occasion to revive the question.

A meeting of the presidents of state universities was called by President Guy Potter Benton, of the University of Vermont, on May 4, at Washington, with the object of organizing the resources of the state universities of the country to help the nation during the war.

At the recent educational conference of the University of Chicago with the academies and high schools in relations with the university, the number of registrations for the departmental conferences was 1,207, and for the administrative sessions 161. In the competitive examinations held in botany, chemistry, commercial geography, English, French, German, history (including civics and political economy), Latin, mathematics, physics, physiography and zoology, 165 boys and girls participated; in the reading contests, 25; and in the public-speaking contests, 48.

The classical and archeological departments of Princeton University are acting as a committee of arrangements in conjunction with a large advisory committee from all the other departments of the university for a conference on classical studies in liberal education to be held at Princeton on June 2. The addresses at the conference are to be given by eminent speakers who, while favorable to classical studies, represent fields of interest outside of the classics. The purpose of the conference is not only to emphasize the importance of classical studies as an essential element in the best liberal education along with mathematics, science, history, economics, philosophy and modern literature, but also to show its practical value. A book is also being prepared which will include opinions of eminent men, here and abroad, in favor of these studies—men in the various fields of professional, business, scientific and literary activity, and in public life. The book will also include statistics bearing on the question.

The New York Senate on May 3, by a vote of 40 to 5, approved the Lockwood bill codifying the state laws governing education. It reduces the membership of the board of education in New York City to seven members, and provides that in every other city of the state the board of education shall be composed of not less than three and not more than nine members. The present board of education in New York City is composed of forty-six members. Another section of the bill sets aside 4.9 mills of every dollar of assessed valuation in a city for educational purposes and provides that in New York City the board of estimate must appropriate this amount for the board of education which by the bill is practically independent of the administration except as to funds in excess of 4.9 mills. It is estimated that the board of education in New York City, keeping within this allowance, would have approximately $500,000 more annually than it has at present. The term of office for members of the board of education in New York City is fixed at seven years. The members are to be appointed by the mayor on the first Wednesday in January next.

Approximately 600 students at the Ohio State University have withdrawn in order to do farm work. This comes as the result of a recent faculty ruling permitting students to withdraw from the university with full credit, providing they would take positions on the

farm. Of this number, 414 are from the college of agriculture and the bulk of the remainder are from the arts college. Several members of the faculty are engaged in lecturing and other work in connection with agricultural stimulation.

UPON the recommendation of the faculty of the graduate school of Cornell University the trustees on April 21 voted to add to the advanced degrees at present conferred by Cornell University that of master of science. At the present time seven masters' degrees are offered by the university, but all these are professional degrees except the degree of master of arts.

DISCUSSION AND CORRESPONDENCE

THE HOMELANDS EXHIBIT AT THE NEW JERSEY STATE MUSEUM

THE Homelands Exhibit held during April by the New Jersey State Museum in Trenton has been such a success, and has met with such splendid response from both native and foreign-born Americans that it could be duplicated to advantage by schools in many other cities and towns.

The special exhibition hall and every other available bit of space in the State Museum fairly sparkles with the brilliant colors of the handicrafts from the homelands of Trentons foreign-born. There are great samovars, old brass candlesticks and other beautiful pieces of metal-ware from Russia, crochetted bed-spreads and exquisite laces and hand-embroideries from Italy, bright-colored bits of hand-weaving and embroidery from Hungary, pipes and steins and a spinning-wheel from Germany, fine old pottery from England, and examples of native craftsmanship from many other countries. One case contains coins of many nations, another bits of typical jewelry, another tableware and quaint kitchen utensils. Most of these articles come from the homes of the so-called poor, and are, therefore, especially typical of the native art and handicraft of the countries they represent.

And this is the way they were collected: Miss Perry, in charge of the museum, first of all asked one teacher from each public and parochial school in the city to come to a meeting at the museum. At that meeting she told them about the homelands exhibits that had been already held in Indianapolis and Newark, and their great success, and asked the schools of Trenton to help her collect the same sort of an exhibit.

The result was that fifteen preliminary exhibits were held in the schools of the city. The teachers asked the children to bring from their homes any hand-made things that their parents had brought from the "old country," explaining to them the sort of things that were wanted. Each school displayed these articles for a day or two, and by asking the parents to attend the exhibit, made of it a social event and thus created a local interest in that community. Miss Perry selected the best articles from each of these exhibits, asked the children if she might borrow them to show in the museum, and labeled them carefully so none might be mislaid or lost. At the close of the exhibit the things will be returned to the schools, and the teachers will see that they are properly distributed to their owners.

As the result of these exhibits, the children of fifteen schools are interested in coming to see their things in the museum—to say nothing of the parents and all the relatives of the children in these fifteen schools, who have things on display.

Already over forty school classes have been brought by their teachers to study the crafts typical of various countries, and art classes from the normal and industrial schools have come to sketch and get ideas in design and color for their own work.

The museum has invited all the foreign societies in the city, foreign churches, mothers' clubs, missionary societies, civic associations, and many other organizations to visit this exhibit. One evening was given up entirely to the Hungarians. At this time there were a number of children in Hungarian costume and prizes were given for the three best Hungarian articles in the exhibit. The Italians are also planning to have a special Italian evening.

A similar exhibit, on a larger or smaller scale, could be arranged by any town where there is a large foreign population. The arti-

cles could easily be collected through the local schools or foreign societies, under the auspices of the public schools, library, museum, civic associations, or women's clubs. The New Jersey State Museum would be glad to furnish an outline for the organization of such an exhibit.

Such an exhibit would do much towards giving Americans a truer appreciation of the gifts of Europe to this country, and at the same time emphasize to the foreign-born parents and their children the dignity and beauty of their native handicrafts. H. C. P.

FEMININE A COMMON GENDER?

In the interest of the dignity of the teacher's calling I should like to suggest that writers and speakers on education use the masculine pronoun when referring to teacher in the generic sense. Teacher is a common gender noun and in English the common gender pronoun is the masculine. For men teachers to use the feminine pronoun so generally seems a bit ungracious, to say the least. It gives the impression that they consider themselves not members of, but rulers over, the tribe, and superior to it. Of course many of these men are principals, supervisors, superintendents, normal school or college professors, but not all of them are, neither does this separate them from the group.

Whatever the reasons for using the feminine pronoun so generally may be, it is clear that this needlessly handicaps a calling that is already sufficiently handicapped. Women teachers prefer to have the common gender pronoun used, even though they may not now use it themselves, for they realize that this lends dignity.

W. C. Ruediger
George Washington University,
Washington, D. C.

QUOTATIONS

EDUCATION IN GREAT BRITAIN

It is many years since a speech by the president of the Board of Education on the estimates of his department has been so eagerly awaited as that delivered by Mr. Fisher in the House of Commons yesterday afternoon. The subject is notoriously one in which Englishmen in the past have shown a very moderate interest, and the average politician has been content to leave it mainly in the hands of the experts, with many unhappy results. But the war, by readjusting our sense of values, has changed our general attitude towards many aspects of public life, and not least towards education. A far larger proportion of the public than was the case before the war now realize that education is not only the basis of national strength, but the whole nerve-system of our national life. If the nerves are out of order, the whole body politic must suffer. It is only after a great war or a great national crisis that the whole social system gets a chance of being overhauled: weaknesses are revealed and their probable consequences considered. Thus the principal reforms which have been introduced into our educational system will be found to synchronize roughly with the wars in which we have been engaged. The beginnings of state education for all, without regard to class or income, may be traced to the conclusion of the Napoleonic wars; compulsory education was first considered as a practical policy after the Crimea, though it took more than a dozen years to carry it into effect; and Mr. Balfour's great act, establishing our present localized system, followed closely on the South African War. But a hundred years of effort have left our national system of education glaringly incomplete. Whether our children go to school too early is a matter of dispute, on which a good deal may be said on both sides; but there can be no question now that the vast majority "complete their education" too soon, whether they never get beyond the elementary school, or whether they pass on to secondary schools or continuation classes. And the teachers, as a class, both elementary and secondary, are paid at a rate which fails to make the profession sufficiently attractive to men of brains and ambition. These are the two main flaws in a system which, in spite of many minor defects, has served us well in the past and is bearing immortal fruit to-day both on sea and on land.

We are glad to record that, in the remarkable maiden speech with which Mr. Fisher held the attention of the House yesterday afternoon for more than two hours, he devoted himself mainly to these two subjects—the inadequacy of the salaries paid and the incompleteness of the education given. It is a great gain in itself that we now have as minister of education not, we may reasonably hope, a politician with merely political ambitions, but a scholar whose profession is teaching and whose special subject is the rise and fall of modern nations. We welcome the fact that Mr. Fisher has fully realized that, whatever the system and organization under which they work, good education is impossible without good teachers. "An anxious and depressed teacher is bad: a bitter teacher is a social danger." England, at this crisis of her fate, owes more than she is always prepared to acknowledge to the trained teachers in her elementary schools, over 42,000 of whom are existing on less than £100 a year. In such circumstances good work implies a strength of character to a degree on which we have no right to rely. Mr. Fisher proposes, by an ingenious system of grants to local authorities which is calculated to relieve the teacher and not the ratepayer, to raise the status of the profession. The immediate cost will be £3,400,000 a year, a trifle in comparison with the national advantages to be gained. In view of the temper of the House yesterday, and of what we know to be the feeling of the country on this subject, we do not think that Mr. Fisher need anticipate any serious opposition to this proposal. We must have more teachers, and we shall not get them unless we pay them a living wage. The position of secondary teachers is at present equally unsatisfactory, though the comparative smallness of their numbers has prevented their claims from being as clearly recognized as those of their elementary colleagues. Mr. Fisher's proposals for secondary schools will be widely welcomed, both by this branch of the profession and by all who recognize the extent of its services to the state.

It is no small thing that, during the greatest crisis that this country has ever faced, we should be able—for we do not hesitate to assume the consent of Parliament—to increase the salaries and prospects of the teaching profession, and thereby to pay, however inadequately, something of the debt we owe to those who have built up the character of our soldiers and sailors of all ranks. But in this way we are only laying the necessary foundation of that better system of education which will, we trust, be part of the heritage of our successors. So long as the education of the majority of boys and girls ends, roughly, at the age of thirteen, we are very far from the ideal of the "career open to talent." Mr. Fisher clearly recognizes that this is so; and he forecasts legislation which will increase the school age to fourteen, and create compulsory continuation schools for older children. "We do not want to waste a single child. We desire that every child in this country should receive the form of education most adapted to put its qualities to the highest use." This is the ideal which hovers before the vision of every far-seeing statesman. Mr. Fisher will have done something towards realizing it by obtaining an additional grant of four millions in the estimates of his department. But we are spending a great deal more every day on the war, or, in other words, on the pursuit of freedom for the individual. The cause for which hundreds are laying down their lives every day is the cause for which every friend of education pleads—the right of every individual to make the most of his life and of his innate faculties and powers. So long as child labor is legal, and so long as the majority of our sons and daughters get no education whatever after the age of thirteen, we are very far from attaining this ideal. Mr. Fisher has laid his foundations well, and he promises a stately building to be completed in a few years' time. Educationists are accustomed to taking the long view, and they are urged to take it once again. After reading Mr. Fisher's speech, they will do so with rising hopes of entering the Promised Land; but we can not deny that the vision is more distant than they had been led to expect.—*The London Times.*

THE AMERICAN FEDERATION OF LABOR AND VOCATIONAL EDUCATION

THE latest annual report of the commissioner of education calls attention to the favorable attitude of organized labor with reference to the movement for vocational education, as represented by the chief executive officials of the American Federation of Labor. The bureau now reports that during the fiscal year covered by this report the American Federation of Labor has again emphasized its cooperation with the forces that are endeavoring to study the problems of vocational education, and to seek the organization everywhere of schools and courses of instruction that shall advance the best interests of all concerned, and that shall be based on sound principles of public policy.

There are two principles which are conceived by the officers of the federation as of paramount importance:

1. The agitation for the reorganization of the public-school system, in order to make it serve more efficiently the real needs of boys and girls and young people, must not be permitted to take the form of, or result in, a movement to diminish or abridge in any way existing opportunities for general education. The reorganization of the schools now in process of development, involving the introduction of various kinds of courses designed to meet the needs of all types of children, is believed to be progress in the right direction in the main.

Under existing conditions all children can not attend colleges and advanced technical schools, and become doctors and lawyers and engineers; consequently there is a real demand that the educational system shall recognize other legitimate and worthy aims besides those of preparing for colleges and the higher professions. Nevertheless, it is held, the newer types of courses that are developed in the attempt to meet these recognized needs must not presuppose any inevitable limitations upon the prospects of future advancement of the young people who avail themselves of the opportunities offered.

The representatives of labor maintain that the door of educational opportunity and advancement must always be kept open, and every individual should be permitted to progress just as far as personal ability and willingness to apply himself will carry him. In this view, vocational education is not to be thought of as a substitute for general education, but as a necessary part of it, or as supplementary to it. To every one should be vouchsafed the opportunity for a broad all-round education that makes for complete manhood or womanhood, which should be supplemented by adequate preparation for a chosen occupation.

2. The second principle emphasized by the federation has to do with the method of organizing and conducting vocational schools. The position taken is that whatever is attempted at public expense under the form of vocational education should be under public and not private control, and, further, that the control of all types of school supported by public taxation should be centered in a single authority responsible directly to the will of the people; that is, the local board of public school trustees in a city or town, and the state department of public instruction in a state.

In support of these contentions the following resolutions, as recommended by the committee on education, were adopted at the thirty-fifth annual convention of the American Federation of Labor, held at San Francisco, Cal., November 17, 1915:

1. That in approving industrial education, equal attention should be given to the general educational studies and requirements of the school children. The convention believes the latter of greater importance to the future welfare of the workers than the former instruction.

2. That industrial education shall include the teaching of the sciences underlying the various industries and industrial pursuits being taught, their historic, economic and social bearings.

3. That all courses in industrial education shall be administered by the same board of education or trustees administering the general education; that no federal legislation on this subject shall receive the approval of the American Federation of Labor which does not require a unit system of control

over all public-school studies, general and industrial.

The full report of the Committee on Education, as printed in the volume of proceedings of the 1915 convention, is of interest for its review of the attitude of the Federation toward vocational education in the past. As early as 1903 a special committee was appointed to consider what could be done to secure from the public schools "the sort of education needed to enable (the workers) to attain the greatest development of their own powers, the best coordination of mind and muscle, and to grow into the fullest and deepest appreciation of the meaning and possibilities of life." Other committees were appointed, and made reports, in subsequent years. At the 1909 convention President Samuel Gompers enunciated the principle that vocational education is a matter of national concern, and as such should be regarded not as a private but as a "public function to be controlled by the public and at public expense." In 1910 a preliminary report on industrial education was published by the Federation, and the final report, authorized at the 1912 convention, was later printed as a government document.

In view of these and other facts presented, the committee appropriately claims that there is abundant evidence that the American Federation of Labor "has consistently and unremittingly advocated the establishment of industrial and vocational education in the public schools."

Further explanation of the point of view of the workers is given in an editorial in the *American Federationist* by President Gompers, from which the following extract is taken:

> To assure every child equal free opportunities for the kind of education which meets his needs and talents is the only basis for genuine equality of opportunity—the only condition upon which democracy will function.
>
> The old cultural ideals of education, dealing with the abstract only, denied to the great majority of children an education adapted to their minds and natures, and hence failed to fit them for the duties and possibilities of the work of life. There have come ideals of an education that teaches out of life and work; that deals with the concrete materials of environment and the duties and activities of life. This education seeks to put into the lives of all that understand, appreciation of the significance of service performed in all the relations of life—an appreciation that shall illuminate all of work and life.
>
> Because the wage-earners have been taught by life that equal educational opportunities adapted to the needs of all are a condition requisite to equal economic opportunities, they have been foremost in pressing demands for the incorporation of industrial education and vocational training as a part of our public-school system.

The interest of the federation is not confined to problems of industrial education, as an examination of the report of the committee on education will show. Not only does the national body have a special committee for the broad study of educational problems, but states and local organizations have established similar committees. One of the recent instances of this action is that taken at the annual convention of the Wyoming State Federation, held at Casper, Wyo., July, 1916, at which time President H. W. Fox recommended and secured the appointment of a permanent committee on education.

During the past year the federation has cooperated through its representatives in important vocational education surveys and other investigations in the state of Indiana, in Minneapolis, Minn., and elsewhere. At a regular meeting of the National Executive Council, held in Washington, D. C., July 24, 1916, it was decided to recommend a study of the Gary system of public schools.

THE WORCESTER POLYTECHNIC INSTITUTE AND THE WAR[1]

THE committee, to which, by vote of the faculty, April 24, were referred the questions of the early closing of the institute and the excusing of students from institute work that they may enter national-defense service, has given these questions careful study, trying to

[1] Report of a committee to the faculty of the Worcester Polytechnic Institute.

get light upon the need of various forms of service, upon our students' attitude toward and aptitude for various forms of service, and upon the action being taken by many other engineering schools in dealing with the problem of their present duty to the nation.

The committee recommends the adoption, by the faculty, of the following resolution:

Whereas, the nation is now at war, and should, therefore, receive the loyal cooperation of every citizen,

Be it resolved: That the faculty of the Worcester Polytechnic Institute hereby records its desire that, in the prosecution of that high enterprise, the Worcester Polytechnic Institute shall aid and cooperate with the President and Congress of the United States with every resource of its man power and equipment.

In trying to determine how to make this cooperation most effective, it must constantly be held in mind that the Worcester Polytechnic Institute is not a college of liberal arts, but a school of engineering with its courses so framed as to train its students for definite and practical service, no less important in war than in peace.

While frankly recognizing that to some students it may seem their duty to drop their institute work in order to enlist in the army or navy, to enter training therefor, or to take part in the making of munitions, or growing of crops, the committee believes that the faculty should strongly urge students in the three lower classes to remain at the institute and not break the continuity of their technical training. It is fully persuaded that this is by far the most effective kind of national and patriotic service that the great majority of these students can now perform.

It is estimated that, in the United States, there are about 6,000,000 men between the ages of 18 and 24. The students in the three lower classes of engineering schools do not exceed 25,000—or barely four tenths of one per cent. of the number of men of their own age. In the coming months, the demand for men of engineering training to enlist in the great services of munition-making, of communication and of transportation is bound to increase. The committee believes that, for teachers and students in engineering schools, the most pressing patriotic duty is to see that there is no lessening in the supply, or lowering in the quality of trained engineers to man those services.

The insistent calls, at the present moment, for our seniors to fill varied national-defense positions for which the four years of training are an essential prerequisite afford evidence that our students should not lightly put aside the costly preparation for engineering tasks represented by the years spent at the institute to enter upon some other line of patriotic service, which is not one whit more essential, but for which engineering students—as compared with more than 99 per cent. of the men of their own age—have shown no special aptitude and have received no special training.

In view of these considerations, the committee recommends:

1. That the institute's regular schedule of class work, examinations, graduation and summer courses for the rest of the present year remain unchanged.

2. That all candidates for degrees at the coming commencement, without conditions, called to service in the army or navy, be excused from their institute work when called, and receive their degrees at the regular time.

3. That the case of any senior, called for special work in industrial lines in the way of preparation for national defense, shall be handled by the president, as the case arises, in consultation with the head of the department, and that the action on all such cases shall be reported later to the faculty.

4. That any students in the junior, sophomore or freshman classes, who, before completing the work of their respective years, leave the institute to enlist in the army or navy, or in training therefor, or to engage in engineering, industrial or agricultural service which is essentially contributory to the national defense, shall be granted leave of absence without prejudice for the remainder of the school year; that they shall be given full credit for the part of the year's work they have completed; and that, upon their return to the institute, they shall be given opportunity to make up the work they have omitted, whether by establishing credits, or by examination, or by work in class, as the nature of the omitted work, in the opinion of the head of the department, in consultation with the individual instructor, may require.

5. That, in compliance with the request of the Committee on Public Safety and in conformity with the resolutions of the Massachusetts college presidents, the institute will accept, on trial, candidates for admission to the freshman class next September, who bring a statement from their high-school principal that they would have been entitled to full certification but for their having been released for definite industrial or agricultural tasks, with evidence that they have given continuous and satisfactory service in that employment.

EDUCATIONAL RESEARCH AND STATISTICS

CLASS EXAMINATION BY THE FREE ASSOCIATION METHOD

A GROUP of twenty-five students of psychology above freshman and chiefly of sophomore and junior rank was tested by the free-association method described below. The test material consisted of figures of a nerve fiber, a neurone, and the left lateral cortex of the cerebral hemisphere, and in addition association stimuli consisting of twenty-two index words from Angell's "Psychology," Chapter II., "The Psychophysical Organism." The figures, also from Chapter II., offered sixteen common features of the nervous system each designated by a digit, making a total of thirty-eight stimuli. The figures and association words were mimeographed upon a sheet of paper. The test material with instructions was as follows:

Directions: Write names of areas or parts designated by digits. *Work as rapidly as you can.*

Do not stop. Opposite each word below write the *first* word or words you think of. WORK RAPIDLY.

1. psychophysical
2. comparative psychology
3. neurone
4. filament
5. neurite
6. dendrite
7. phylogenetic development
8. pigment spot
9. synapsis
10. afferent
11. ontogenetic development
12. neuroglia
13. functional grouping of neurones
14. peripheral neurones
15. subcortical neurones
16. efferent
17. cerebrum
18. sensory area
19. cerebellum
20. motor area
21. fissure of Rolando
22. fissure of Sylvius

Time ————————

After a study of Chapter II. of Angell's "Psychology" by means of a syllabus, recitations, class instruction, the use of charts and models, the above test was run upon the class in group. The method of reading out the time at five-second intervals from a stop-watch was

FIG. 1

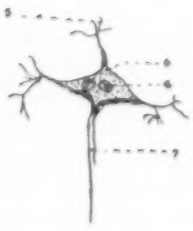

FIG. 2

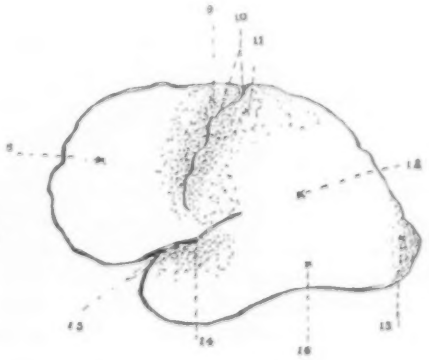

FIG. 3

employed, each reagent having been instructed to put down with his last association the last time heard.

The following table gives the ranking of the reagents on the basis of the total number of seconds for the entire test of thirty-eight stimuli, the seconds-rank order running from the shortest to longest corrected association times. The initials are fictitious. The first column of association times is composed of the times recorded by the reagents at the bottom of their test sheets. The table also contains other data to which reference will be made later in this article.

1	2	3	4	5	6	7	8
Reagents	Association Times	No. of Errors	Corrected Association Times	Semester Grade (Basis 1,000)	Corrected Times Rank	Grade Rank	Rank Difference
DM ...	275	6	347	960	1	2	1
AC.....	350	5	410	970	2	1	1
HS.....	330	9	438	900	3	7	4
HC ...	325	10	445	940	4	3	1
WD...	300	13	456	730	5	14	11
KB ...	425	5	465	940	6	4	2
BA ...	320	8	466	710	7	16	9
RM ...	395	7	479	930	8	5	3
ZJ	410	7	494	740	9	13	4
TC.....	420	8	516	890	10	8	2
LS.....	295	20	535	750	11	12	1
CR.....	480	5	540	720	12	15	3
EH....	485	5	545	700	13	17	4
SF.....	320	22	584	640	14	22	8
SC.....	445	14	613	670	15	20	5
CF.....	335	24	623	600	16	25	9
CG.....	485	12	629	620	17	23	6
MR ...	490	14	658	675	18	19	1
FT	470	16	662	650	19	21	2
PC.....	460	18	676	605	20	24	4
MA ...	390	25	690	800	21	11	10
SB.....	530	14	698	850	22	10	12
TH ...	525	15	705	870	23	9	14
BS.....	460	14	726	675	24	18	6
PO	655	6	727	920	25	6	19

Any attempt to correct for errors in a complex performance like the one under consideration will always be inexact, but since the basis for rating our reagents is the time of their performing a given task, cognizance must be taken of the accuracy with which the task has been performed. In the present task the only gross measures of accuracy can be the relevance or irrelevance of the associates, or the failure to associate. Failure to associate and an irrelevant associate are both checked as erroneous, but upon the questionable assumption that they are erroneous in the same amounts.

According to the general law of association a balked response is due either to lack of relevance with the reagent's experience or to his conscious inhibition of the associate, and both check against him in a test like the one under consideration in time units greater in amount than his free associates. Likewise entire failure to associate to a stimulus when the method of free association is used is from the informational standpoint a greater failure than an irrelevant response, as it shows that the stimulus word found no place among the reagent's apperceptions.

Provided a task is not overdone and that there are no errors, time alone, or the speed of its performance, measures it. Using time as the only criterion for rating the various reagents of this test, the rank-order would differ from that of Column 4 of the Table of Results. A glance at the table shows that the rating by time alone (Column 2) is more complimentary to several reagents than the corrected rating. But in order to approximate the true rating of the reagents, penalty or correction for error must be undertaken.

The amount of correction for error employed in the present test was derived by taking one half the sum of the highest and lowest association times (Column 2) and dividing by 38, the number of association stimuli, giving a correction of 12 seconds for each error. If the seconds-difference between the orders from the highest to the lowest values was constant the correction of 12 seconds would be exact. Although not arbitrary, it is not a true correction, as is readily seen. For example, reagents LS, SF, CF, MA and BS, whose errors are, respectively, 20, 22, 24, 25, 14, even after correction of their association times on the basis of 12 seconds for each error, outrank in time CR, EH and PO, whose errors are, respectively, only 5, 5 and 6. The four first named seem to have sacrificed accuracy to speed; the others were evidently phlegmatic or in few cases employed free association. In the results four types of reagents are shown, viz., the slow and

accurate—plodders; the slow and inaccurate—types of reagents are shown, *viz.*, the slow and the fast and accurate—efficient. In the present test the dull (or ignorant) and the careless can be rated only on the same basis.

Correcting for errors makes several noticeable readjustments of rank. BS is penalized 8 steps of the scale (certainly not equivalent steps) for error of response; MA, 11; CF, 10, while LS—who is of the careless type of worker—is set back from position 2 on the scale to position 15. It is significant that the errors predominate in the lower end of the scale.

In this test the intensity of the bond between paired associates is measured by the facility of recall. Since the work was largely uniform in nature and amount, and uniform syllabi, etc., were employed by the reagents, it is fair to assume that all had had equal chance of forming bonds. For this reason it seemed fair to suppose that the corrected association-time order would tend to agree with the order of scholarship of the class. To test this matter, the scholarship grades in psychology received by the 25 reagents at the end of the semester were transmuted into the values of column 5 on a basis of 1,000.

The scholarship-mark order is open to the objection pointed out in connection with the association-time order, namely, that the matter of a few units difference between the measurements of two reagents sometimes effects a disproportionate difference in rank-position, *e. g.*, LS ranking 12 on a grade of 750 and CR, 15 on a grade of 720.

Fig. 4 represents the results graphically. The straight line represents the ordering of corrected association time values from fastest, (1), to slowest, (25); the values connecting with the serial order values along the solid line by means of broken lines represent the grade-rank positions of the reagents corresponding to the rating upon the solid line. For example, HS is seen to rank third in time and 7 in scholarship, and WD, 5 in time and 14 in scholarship.

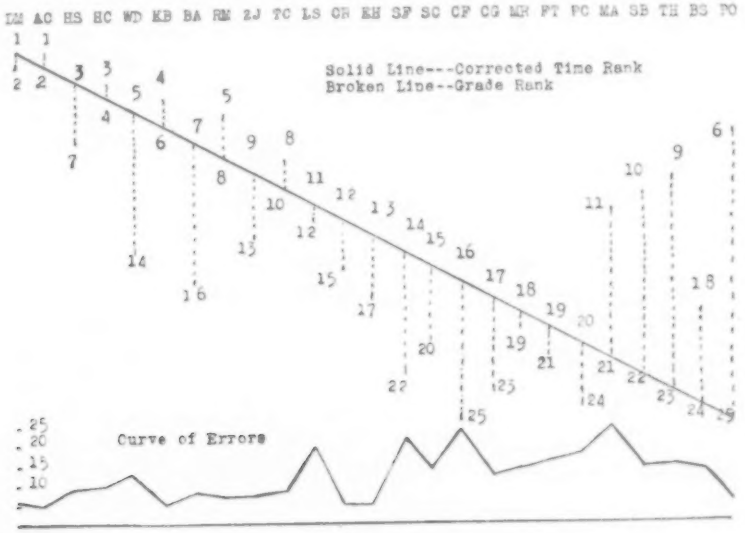
IM AC HS HC WD KB BA RM ZJ TC LS CR EH SF SC CF CG MH FT PC MA SB TH BS PO
Solid Line---Corrected Time Rank
Broken Line--Grade Rank
Curve of Errors
.25
.20
.15
.10

FIG. 4.

A fair correlation between the ratings of the students by their corrected association-times and the semester's marks is shown by ascertaining the Pearson coefficient of correlation, *r*, which in the present test is .503. Fig. 4, which visualizes the relationship, shows that the results of reagents MA, SB, TH and PO distinctly reduce the amount of correlation. The ability of the phlegmatic but careful stu-

dent is apparently underestimated by the association-time rank method, while the quick and superficial one is likely to be ranked higher than his ability warrants.

If the personal coefficient of the individual is approximated, and if the purpose of the examination is to test for *facts*, the method above described is fairly serviceable. The time of response to the keywords of a subject is a fair measure of the range of information in that subject. To live up to the aim of a true examination as a review, a new view, or whole view, the factual test must be supplemented by a list of "long-examination" questions testing the student's ability *to think the subject*. But time is wasted in formulating a factual associate into a sentence, in writing the sentence, and in having it read. A fact is one of a pair or complex of associates and is revived as a concomitant of its associates, depending upon them for revival. Whatever revives a fact in a situation or a formally constructed interrogation is a *key-meaning* or a *key-word:* everything else is irrelevant to the refunctioning of the associates. The following parallel is suggestive:

Q. According to their functions in the central nervous system how may neurones be grouped?	*S.* Functional neurones.
A. The neurones of the central nervous system may be grouped according to their functions as follows: (1) the sensory neurones, (2) the central group of neurones, and (3) the motor neurones.	*R.* Sensory, central, motor.

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SOCIETIES AND MEETINGS

THE AMERICAN ASSOCIATION OF COLLEGE REGISTRARS

That the colleges and universities of the country are giving liberal consideration to students who resign to enter national service was shown in reports to-day from members of the American Association of Collegiate Registrars, which held its eighth annual meeting at the University of Kentucky, April 25 to 27.

The association endorsed as "patriotic and expedient" the principle of allowing scholastic credit to students who cease their college work for service in military or allied activities and favored acceptance into college next fall, or later, of new students whose entrance credits may be somewhat short because of similar curtailment of their secondary-school courses this spring.

The association endorsed an offer of the executive committee to the War Department to endeavor to obtain the cooperation of governing boards of their institutions in using registrars' offices as recruiting stations, if the need arises.

In addition to considering the war situation and the problem of next year's enrollment, the registrars discussed grading, matters relating to admission, attendance and absences, fees, registration, reports on standing and other subjects. The speakers were President Henry S. Barker, of the University of Kentucky; C. M. McConn, University of Illinois; E. B. Pierce, University of Minnesota; Raymond Walters, Lehigh University; Ross Jewell, Syracuse University; Carey E. Melville, Clark College; Miles E. Marsh, Berea College, and Arthur W. Tarbell, Carnegie Institute of Technology. At the topical conferences the chairmen were J. A. Gannett, University of Maine; William A. Alexander, Swarthmore College; Charles S. Marsh, Northwestern University; Miss Isabel F. Wolcott, Oberlin College and H. H. Caldwell, Georgia Institute of Technology. Papers prepared by Professors F. W. Nicholson, Wesleyan University, and G. E. Snavely, Allegheny College, were read.

Officers for 1917–18 were elected as follows: President, A. W. Tarbell, Carnegie Institute of Technology; First Vice-president, W. D. Hiestand, University of Wisconsin; Second Vice-president, J. A. Gannett, University of Maine; Secretary-Treasurer, Ezra L. Gillis, University of Kentucky.

More than sixty colleges and universities were represented at the registrars' meeting, ranging from Maine to Georgia and North Dakota to Arizona and Texas.